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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,773	02/08/2002	Walter Kraft	SCHSM-011XX	2015
7590 09/09/2005				
WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP Ten Post Office Square Boston, MA 02109			EXAMINER TUCKER, WESLEY J	
			ART UNIT 2623	PAPER NUMBER

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/072,773	Applicant(s) KRAFT ET AL.	
	Examiner Wes Tucker	Art Unit 2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,6-15,17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,6-15,17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's response and amendment filed June 28th, 2005 has been entered and made of record.
2. Applicant has amended claims 1, 3, 6-15 and 17-18. Claims 2, 4, 5, 16 and 19-21 have been canceled. Claims 1, 3, 6-15 and 17-18 remain pending.
3. Applicant's arguments have been entered and made of record but are considered moot in view of the new rejection now presented. The new rejection was necessitated by the amendment and is accordingly made final.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 6-11, 14, 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,603,878 to Takemoto and U.S. Patent 6,856,704 to Gallagher et al..

With regard to claim 1, Takemoto discloses a method for changing local sharpness of a photographic image having a multitude of image elements comprising:

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Recognizing at least one region of the photographic image, each such region containing an image of sky, skin or vegetation, wherein the recognition is based on a characteristic color in the respective region (column 15, lines 5-15);

Determining a correction mask, elements of the correction mask describing changes of the sharpness or local sharpness to be made to respective corresponding image elements of the photographic image (column 13, lines 55- column 14, line 8), comprising:

Using information related the photographic image including at least local contrast in the photographic image, to determine at least some of the elements of the correction mask (column 14, lines 1-8, see sharpness coefficient K); and wherein:

The sharpness of at least some image elements in regions of the photographic image that contain images of skin or sky are to be decreased, according to information related to respective regions (column 14, lines 9-17); and

Applying the correction mask to the photographic image (column 14, lines 17-35).

Takemoto does not explicitly disclose the sharpness of at least some image elements in regions of the photographic image that contain images of vegetation are to be increased, according to information related to respective regions. Gallagher teaches the variable sharpening of grass and variable de-sharpening of skin and sky according to context within the image (column 20, lines 11-26). Therefore it would have been obvious to one of ordinary skill in the art to account for image content such as grass and vegetation as taught by Gallagher in addition to the variable sharpening and de-

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sharpening in relation to skin and sky content in images as disclosed by Takemoto in order to create an overall more appealing image.

With regard to claim 3, Takemoto discloses wherein using information related to the photographic image comprises using information related to at least one of color tone, color saturation and color contrast (column 14, lines 10-15) of at least one image element in the vicinity of a target image element to determine an element of the correction mask that corresponds to the target image element (column 14, lines 10-15). The target image element is interpreted as that of a region of sky or skin.

With regard to claim 6, Takemoto discloses the method wherein using information related to the photographic image comprises using at least one of:

Information obtained from an analysis of the photographic image (column 13, lines 52-55). Analysis is inherent in determining where regions of skin or sky reside).

Takemoto further discloses information associated with the photographic image and input into a correction process (column 4, lines 34-49). Here the metadata described is interpreted as information input to the correction process.

With regard to claim 7, Takemoto discloses the method further comprising:

Analyzing the photographic image to determine if the photographic image contains at least one characteristic image region having a multitude of image elements

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(column 14, lines 1-15). Analyzing the image is inherent to determining where regions of skin or sky are in the image.

Takemoto further discloses assigning nominal sharpness or a nominal image sharpness range to at least one determined characteristic region (column 14, lines 1-10). A sharpness coefficient K is used to determine the sharpness. The S_{org} value is interpreted as the nominal sharpness.

Wherein determining the correction mask comprises determining at least some of the elements of the correction mask, such that elements of the correction mask that relate to image elements in the at least one determined characteristic image region cause at least an approximation of the image sharpness to the assigned nominal image sharpness or the assigned nominal image sharpness range (column 14, lines 1-35). The unsharp masking correction is determined in view of a sharpness correction coefficient K , which is adjusted according to level of sharpness or sharpness range.

With regard to claim 8, Takemoto discloses the method of claim 7, further comprising determining a degree of association of an image element to a characteristic image region (column 10, lines 22-35). The degree of association is interpreted as the gradation hardening used to determine separate regions of the image.

Determining the correction mask comprises determining at least some of the elements of the correction mask based on the nominal image sharpness or the nominal image sharpness range and the degree of association of the respective image elements (column 10, lines 22-35 and column 14, lines 1-14). The determination of the correction

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mask takes into account the degree of association by first determining gradation and the nominal sharpness range is considered included in the original sharpness value in equation 7.

With regard to claim 9, Takemoto discloses the method of claim 6, wherein:

Using information related to the photographic image comprises using color values and image properties including at least brightness and color tone (column 13, lines 17-34) and further comprising:

Determining image content information, comprising: associating at least one color value with at least one pre-selected characteristic color value (column 13, lines 17-34, see cyan and blue) and

Associating a nominal image sharpness or a nominal image sharpness range with at least one pre-selected characteristic color value (column 14, lines 9-17) wherein

Determining the correction comprises determining at least some of the elements of the correction mask comprises determining at least some of the elements of the correction mask based on color values of image elements of the photographic image that correspond to the respective elements of the correction mask and the pre-selected characteristic color values associated with the color values of the respective image elements (column 14, lines 9-17) and

The nominal image sharpness or the nominal image sharpness of the nominal image sharpness range associated with the predetermined characteristic color values of the respective image elements of the correction mask and the pre-selected

characteristic color values associated with the color values of the respective image elements (column 14, lines 1-35). Takemoto discloses that certain sections are extracted and enhanced/sharpened according to their color using a K sharpness enhancement coefficient. It is interpreted that a value of K corresponds to a sharpness enhancement or a particular degree of sharpness or unsharpness. While Takemoto may not explicitly disclose sharpness ranges designated to each color, it is inferred that certain values of K would be used for skin colored or sky colored regions as the value of K to be used must be known according to certain image content or color.

With regard to claim 10, Takemoto discloses the method of claim 6, further comprising:

Analyzing the photographic image to be corrected or an image derived therefrom for a transition between two image regions that each includes a multitude of neighboring image elements, wherein one of the image regions has a different structure than the other image region (column 11, lines 5-35). Takemoto discloses a gradation detecting and enhancing step. The gradation is interpreted as a transition between two image regions having different structures.

Determining the correction mask comprises determining at least some of the elements of the correction mask based on whether or not the respective elements relate to a transition (column 11, lines 5-35 and column 14, lines 1-17). Takemoto discloses the unsharp masking that is performed after the gradation or transition between image regions is detected and the gradation or hardening enhancement is performed.

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Therefore the correction mask determination is based on the gradation or image region detecting process.

With regard to claim 11, Takemoto discloses the method of claim 6, wherein using information related to the photographic image comprises using data related to the position of artifacts in the photographic image and determining at least some elements of the correction mask based on whether or not the respective elements relate to locations in the photographic image where artifacts are present (column 14, lines 17-26). Takemoto discloses calculating the sharpness enhancing function in order to suppress noise and graininess therefore calculating elements of the correction mask where artifacts or noise is present.

With regard to claim 14, Takemoto discloses a device for focusing a photographic image that includes a multitude of image elements, comprising:

A recognition unit operative to recognize at least one region of the photographic image, each such region containing an image of skin, sky or vegetation, wherein the recognition is based at least on a characteristic color in the respective region (column 15, lines 5-15);

A correction mask determining unit operative to determine a correction mask wherein elements of the correction mask describe changes of sharpness to be made to respective corresponding image elements of the photographic image (column 13, lines 55- column 14, line 8); and

The elements of the correction mask are determined on the basis of an image property, including at least a local contrast, and additional information relating to the image (column 14, lines 1-8, see sharpness coefficient K), such that the sharpness of at least some image elements in regions of the photographic image that contain images of skin or sky are to be decreased according to information related to the respective regions (column 14, lines 9-17);

Takemoto does not explicitly disclose the sharpness of at least some image elements in regions of the photographic image that contain image of vegetation are to be increased, according to information related to the respective regions. Gallagher teaches the variable sharpening of grass and variable de-sharpening of skin and sky according to context within the image (column 20, lines 11-26). Therefore it would have been obvious to one of ordinary skill in the art to account for image content such as grass and vegetation as taught by Gallagher in addition to the variable sharpening and de-sharpening in relation to skin and sky content in images as disclosed by Takemoto in order to create an overall more appealing image.

With regard to claim 15, Takemoto discloses an article of manufacture, comprising a computer readable medium storing computer instructions operable to cause a computer that executes the instructions to perform the method of claim 1 (Fig. 3).

With regard to claim 17, Takemoto discloses the device of claim 14, further comprising an image reproduction device (Fig. 3, elements 12, 16 and 20).

With regard to claim 18, Takemoto discloses the device of claim 17, wherein the image reproduction device is selected from a group consisting of a photographic printer, a printer, a photolab, a minilab, a monitor, and a computer with a monitor (Fig. 3, elements 12, 16 and 20).

5. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 6,603,878 to Takemoto and U.S. Patent 6,804,408 to Gallagher et al. and further in view of U.S. Patent 5,270,530 to Godlewski et al.

With regard to claim 13, Takemoto and Gallagher disclose the method of claim 1, but do not explicitly disclose the steps of claim 13. As best determined, Claim 13 describes the well known operation known as unsharp masking. Godlewski discloses the steps of unsharp masking including:

Applying an image detail reduction process to the photographic image to be sharpened, such that coarse image data resulting therefrom represents a coarse image with less details than the photographic image to be sharpened, wherein the coarse image includes a multitude of coarse elements (column 10, lines 14-22, see blurring);

On the basis of local contrast information, determining a coarse correction mask that describes a correction of the image sharpness of the coarse image (column 10, lines 22-25, the coarse correction mask is interpreted as the edge only image); and

Based on information related to the photographic image, correcting elements of the coarse correction mask (column 10, lines 24-28, the correction of elements is interpreted as the low boost factors); and wherein

Determining the correction mask comprises using the corrected coarse correction mask (column 10, lines 24-28). The unsharp mask or correction image is determined from the image and the boosted edges only image.

Takemoto discloses unsharp masking (column 14, line 1), but does not disclose the known steps claimed in claim 13. Godlewski discloses the steps of unsharp masking. Therefore it would have been obvious to one of ordinary skill in the art to apply the unsharp masking steps taught by Godlewski in the unsharp masking of Takemoto.

With regard to claim 12, Takemoto discloses the method of claim 1, but does not explicitly disclose wherein determining the correction mask comprises determining a base mask based on local contrast information, elements of the base mask being corrected based on the associated elements of an additional information mask determined from information related to the photographic image. Claim 12 appears to be a broader recitation of the steps of claim 13. The discussion of claim 13 therefore also applies to that of claim 12.

Godlewski discloses determining the correction mask comprises determining a base mask based on local contrast information, elements of the base mask being corrected based on the associated elements of an additional information mask determined from information related to the photographic image (column 10, lines 22-25). The additional information mask is interpreted as the edge only image and the base mask is the unsharp mask determined using information from the additional information mask. The references of Takemoto, Gallagher and Godlewski are combinable for the same reasons stated above in regard to claim 13.

Conclusion

Applicant's amendment necessitated the new grounds of rejection presented in the Office Action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wes Tucker whose telephone number is 571-272-7427. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wes Tucker

9-1-05



VIKKRAM BALI
PRIMARY EXAMINER